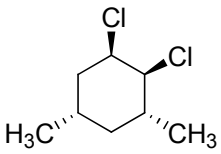
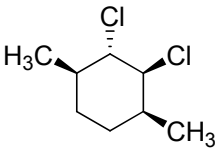
Übungen zur Vorlesung Organische Chemie für das Nebenfach

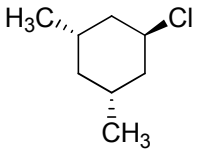
3. Übung

1. Isomere:

a) Übertragen Sie folgende substituierte Cyclohexane aus der planaren Darstellung in eine Sesselkonformation. Leiten Sie aus den von Ihnen gezeichneten Sesselkonformeren durch „Umklappen“ des Ringes das jeweils zweite mögliche Konformer ab.

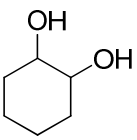




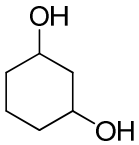


b) Zeichnen Sie eine mögliche Strukturformel (planare Darstellungsweise genügt) von *cis*-1,3-Dichlorcyclobutan, *trans*-1,4-Dimethylcyclohexan sowie (1,2-*cis*; 2,3-*trans*)-1,2-Dibrom-3-methylcyclopentan.

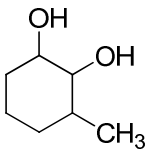
c) Welche der folgenden Verbindungen sind Konstitutionsisomere?



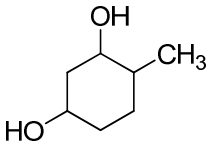
A



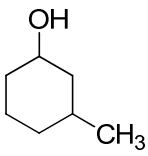
B



C

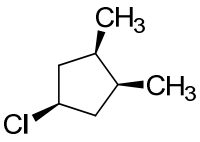


D

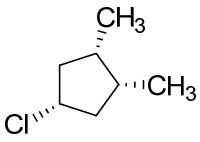


E

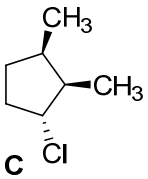
d) Welche der folgenden Verbindungen sind zueinander Stereosiomere (Konfigurationsisomere)?



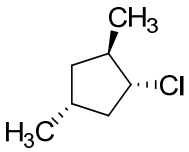
A



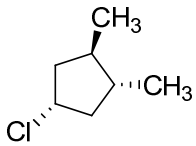
B



C



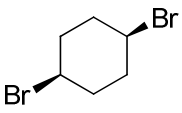
D

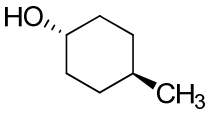


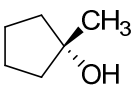
E

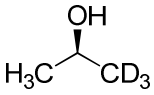
2. Chiralität:

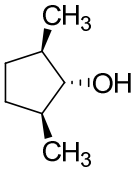
a) Welche der folgenden Substanzen sind chiral? (Bedenken Sie, dass Moleküle mit einer internen Spiegelebene nicht chiral sind.)

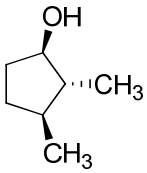




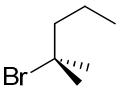


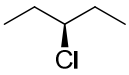


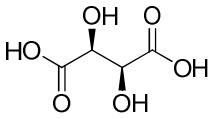


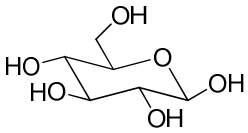


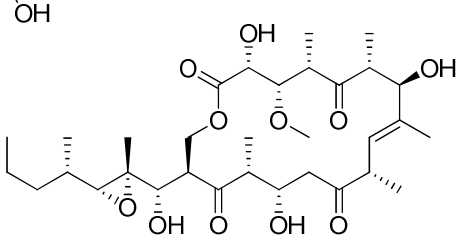
b) Markieren Sie bei den folgenden Molekülen alle Chiralistätszentren (falls vorhanden). (Denken Sie an die Voraussetzung, dass das C-Atom 4 verschiedene Substituenten besitzen muss).











c) Bestimmen Sie in den aufgeführten Molekülen die Konfiguration der Chiralitätszentren nach dem CIP-System.